# MCL-36K-SPD

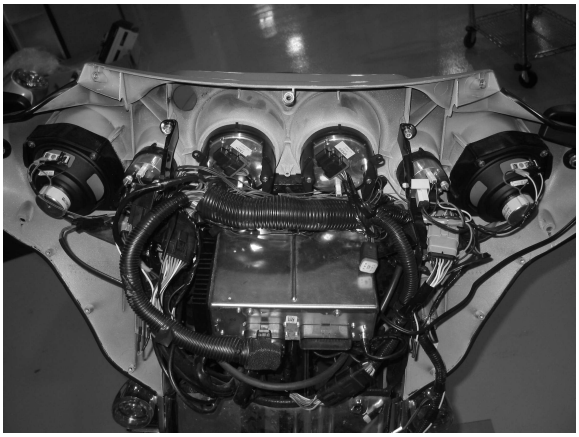
Thank you for purchasing the Dakota Digital MCL-36K-SPD gauge for your Harley Davidson Touring bike. This kit is designed to be a direct, plug in replacement for all touring models from 2004 – 2011. This is part of a six gauge package for touring models so you can add additional gauges as you choose.

**IMPORTANT NOTE!** **This gauge has an odometer preset option that is only available for the first 100 miles (160km) of operation. See "preset odometer" for instructions.**

## INSTALLATION

First read and familiarize yourself with all of the components and this manual. The first step is to remove the seat and disconnect the negative side of the battery, as with any electronic install. Once the battery is disconnected you are ready to start.

Remove the outer fairing; this will vary from model to model, so please follow the service manual to expose the wiring and gauges. Don't be alarmed by the amount of wires behind the fairing, this is a direct plug in gauge and these detailed instructions will guide you through it.



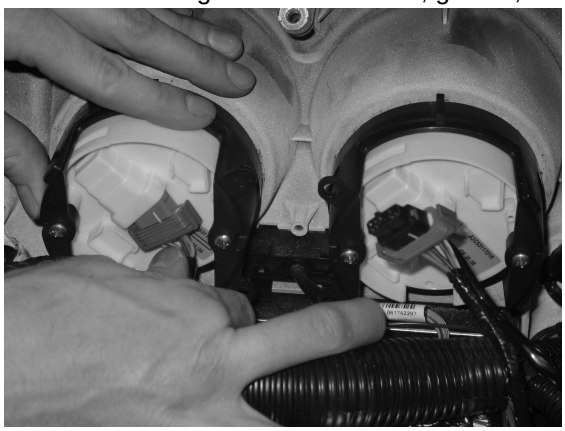
Street Glide with outer fairing removed

Road Glide with outer fairing removed

## REMOVAL OF FACTORY GAUGE

### ULTRA FLHT & FLHX (STREET GLIDE batwing fairings)

Unplug the speedometer. Remove the screws securing the clamp that holds the gauge in place and pull it out through the front of the fairing. Save the screws, gasket, and clamp to be reused when you install the new Dakota Digital gauge.



**Unplug the factory speedometer**

**Unscrew the clamp and remove gauge**

**FLTR (ROAD GLIDE)**

You will need to remove the speedometer and tachometer instrument bezel. To do this, remove two small screws on the left and right side of the bezel. Lift up on the back of the bezel and slide the tab that is under the ignition switch out from under the switch cover (see Photo A below). Unplug the gauge connections and unplug the indicator lights so the bezel can be completely removed for easier installation of the new gauge. Remove the clamp that holds the speedometer to the bezel and remove the gauge and gasket.

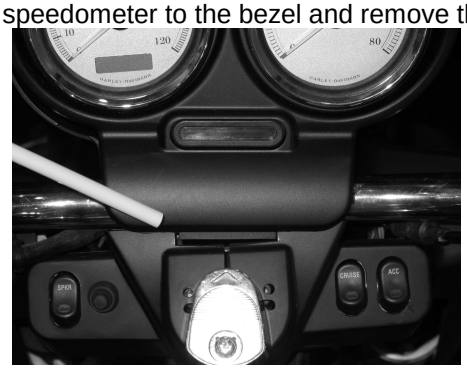


**Photo A**

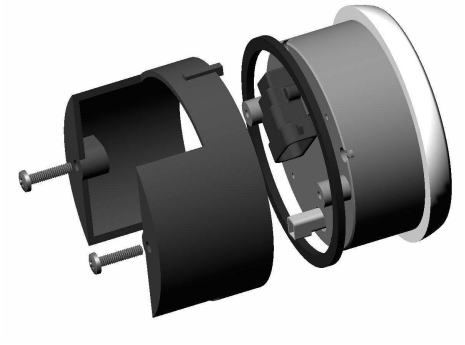
**Bezel removed**

**Gauges/Grommets removed**

***IMPORTANT NOTE!***

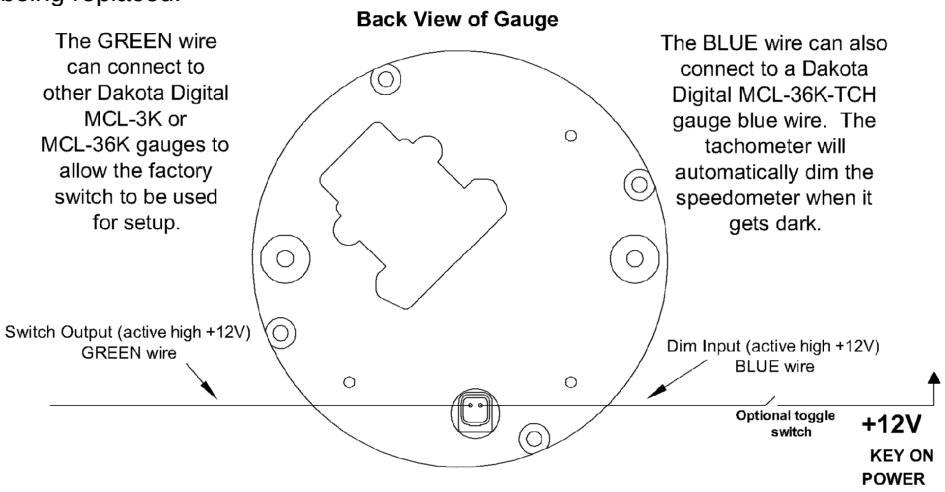
**SAVE ALL CLAMPS, GASKETS, and SCREWS FROM THE STEPS ABOVE AS THEY WILL BE USED TO SECURE THE NEW DAKOTA DIGITAL GAUGE**

Next you are ready to install the new gauge into the fairing. Install the gauge and secure using the original hardware that was removed: clamp, gasket, and screws. Be sure the alignment tab on the clamp lines up with the notches in the fairing. Some fairings may only have one notch, line up at least one tab on the clamp with the notch in the fairing, this will ensure the gauge is centered and aligned correctly.



## WIRING (plug in connections)

Plug the original speed connector directly into the new gauge. The BLUE wire on the small, two-wire plug controls the dimming circuit. When this wire receives +12 volts, the gauge will dim to 50% intensity. This wire can be connected to a toggle switch, or to a Dakota Digital MCL-36K-TCH (the tachometer has a sensor that activates the dimming feature when ambient light is low). The GREEN wire can provide a switch signal to allow other Dakota Digital MCL-3K gauges to be set up from the factory switch on the dash. The GREEN wire will not be used if the speedometer is the only gauge being replaced.


Back View of Gauge
The GREEN wire can connect to other Dakota Digital MCL-3K or MCL-36K gauges to allow the factory switch to be used for setup.
The BLUE wire can also connect to a Dakota Digital MCL-36K-TCH gauge blue wire. The tachometer will automatically dim the speedometer when it gets dark.
Switch Output (active high +12V) GREEN wire
Dim Input (active high +12V) BLUE wire
Optional toggle switch
+12V
KEY ON POWER

## FUNCTION SWITCH

The factory speedometer push button switch is used as the main function switch. The function switch allows access to all of the mileage and performance information. Pressing and releasing the function switch toggles through the different displays. Pressing and holding the switch for about 2 seconds will reset the current display. The display sequence for the speedometer is as follows:

SPEED MENU

| | |
|---|---|
| 000000 | odometer mileage |
| A 000.0 | trip meter mileage A |
| B 000.0 | trip meter mileage B |
| S 0000 | miles since last service (if programmed) |
| ======= | speedometer will show km/h (or MPH if metric) |
| r 250.0 or rAnGE | distance to empty (if turned on) |

PERFORMANCE MENU(on speedometer when enabled)

| | |
|---|---|
| HI 00 | high speed recall |
| 60 00.0 | 0-60 mph time (0- 00.0 0-100kph) |
| 25 00.0 | quarter mile time |
| 25 00 | quarter mile speed |
| t 000F | cylinder head temp from ECM (run switch must be on) |

The 0-60 and ¼ mile timers are zeroed by pressing and holding the switch while that timer is displayed. The timer will not restart until the speed reaches zero and you start driving again.

## GAUGE SETUP AND CALIBRATION

The function switch, discussed above, is used to enter setup mode for all of the gauges. If you are only installing one or a couple Dakota Digital MCL-3K gauges, then setup may seem a little strange since they are designed to work as a set. The first step in the setup procedure is to select which gauge you are going to adjust. Each gauge will either show a number or a label. If the gauge is showing a label then that gauge will be selected to enter setup. All of the other gauges will exit setup and allow the selected gauge to be changed. To get into setup, press and hold the function switch while turning the key on. Press and release the switch to advance through the menus below, when on the desired option press and hold the switch to select setup for that particular gauge/function.

| | Speed | Tach | Oil PSI | Oil Temp | Fuel | Volt |
|---|---|---|---|---|---|---|
| 1st | - 1 - | CL | - 1 - | - 1 - | - 1 - | - 1 - |
| 2nd | SPd | - 2 - | - 2 - | - 2 - | - 2 - | - 2 - |
| 3rd | - 3 - | tCH | - 3 - | - 3 - | - 3 - | - 3 - |
| 4th | - 4 - | - 4 - | PSI | - 4 - | - 4 - | - 4 - |
| 5th | - 5 - | - 5 - | - 5 - | F or C | - 5 - | - 5 - |
| 6th | - 6 - | - 6 - | - 6 - | - 6 - | FUL | - 6 - |
| 7th | - 7 - | - 7 - | - 7 - | - 7 - | - 7 - | ULt |
| 8th | - 8 - | - 8 - | - 8 - | - 8 - | - 8 - | - 8 - |

### FACTORY DEFAULT SETTINGS FOR SETUP MENUS

Below is a list of factory gauge settings and what can be adjusted in the setup menus. You can calibrate and adjust speedometer as often as you wish, however it should only need to be set once. The calibration will be correct for a stock bike, but the speed can be adjusted to compensate for a change in tire size, pulley size or transmission gearing.

| | |
|---|---|
| Speedometer calibration | 1.00 |
| Unit | MPH |
| Service meter | OFF |
| Performance Menu | ON |
| Fuel selection | OFF |

**SPEEDOMETER SETUP**

| Main Menu | Sub Menu | Description |
|---|---|---|
| SPd | d IAG | Read diagnostic codes from engine or security modules. |
| | AdJuSt | select adjust calibrate speed |
| | un It | select speed unit (MPH or km/h, default MPH) |
| | S SEt | miles to service setting (default off) |
| | PErF | enable/disable performance readings (default on) |
| | FuEL | select fuel sender type (default off) |
| | rAnGE | setup miles to empty function |
| | -odoM | one-time odometer preset (only shown while odometer has less than 100 miles) |

Press and hold the switch while turning the key on. Release the switch. The speedometer will show "- I-". Press and release the switch so that "SPd" is displayed. Press and hold the switch for about 3 seconds until "-" is displayed. Release the switch. The MPH display will show "SEt" and the odometer display will show "d IAG". Press and release the switch to move through the different speedometer setup menus; press and hold the switch to select a menu option.

### d IAG Diagnostics mode for checking/clearing trouble codes

- Press and release the switch until "d IAG" is displayed, then press and hold the switch until " - " is displayed.
- Release the switch. The display will show "EnG InE", "SECurE", "AbS", or "donE".
- Press and release the switch to change the selection, press and hold the switch until " - " is displayed to begin reading the stored codes for the particular system.
- Release the switch. The display will show the current codes, "nonE", or "no rSP". Press and release the switch to move to the next stored code. After all codes are displayed the module part number will be scrolled across the screen. To clear codes, press and hold the switch when "end" is displayed. Consult a service manual for trouble code descriptions.

### AdJUSt Speed Calibration

The speedometer is calibrated by the engine computer, but the speedometer reading can be adjusted through the gauge. The adjustment is set a value from 0.75(75%) – 1.25(125%) with 1.00 being no change.

- Press and release the switch until "AdJuSt" is displayed, then press and hold the switch until " - " is displayed.
- Release the switch. The display will show "SLoUJ" or "FASTEr". Slow will make the speedometer read lower, faster will make the speedometer read higher. Press and release the switch to change the selection, press and hold the switch until " - " is displayed to continue on.
- Release the switch. The display will show "CL 1.00" or whatever the current calibration ratio is.
- Press and release the switch to change the adjustment ratio. Press and hold the switch until " - " is displayed to save the currently displayed ratio.

### un It MPH/km/h Selection

- Press and release the switch until "un It" is displayed, then press and hold the switch until " - " is displayed.
- Release the switch. The display will switch to "un It" and light up the current speed unit (MPH or km/h).
- Press and release the switch until the desired setting is displayed.
- Press and hold the switch until " - " is displayed to the setting.

### S SEt Miles to Next Service setup

The service mileage is a countdown mile meter. The service mile display can be disabled or can be set to count down from 500 – 7500 miles. If the service mile is enabled and it gets to 0 miles, it will display "S -dUE" each time the key is turned on. If the push button switch is pressed and held while "S ----" is displayed, the service miles will be reset.

- Press and release the switch until "S SEt" is displayed, then press and hold the switch until " - " is displayed.
- Release the switch. The current setting will be displayed. ("oFF" or a mileage from 500 – 7500 in increments of 500.)
- Press and release the switch until the desired setting is displayed.
- Press and hold the switch until " - " is displayed to save the setting.

### PErF Performance Menu setup

The performance readings can be turned on or off. When they are turned off the odometer will only toggle through the mileage readings.

- Press and release the switch until "PErF" is displayed, then press and hold the switch until " - " is displayed.
- Release the switch. The current setting will be displayed ("on" or "oFF").
- Press and release the switch until the desired setting is displayed.
- Press and hold the switch until " - " is displayed to save the setting.

### FuEL Fuel sender selection *DEFAULT OFF*

This setting should be set to "oFF", this may be used for future accessories. The options are to allow the fuel information to be introduced to the data bus. This menu is not really important but is here in case future accessories require it. You should not harm anything if the settings are incorrect, but OFF is the default setting at this point.

- Press and release the switch until "FuEL" is displayed, then press and hold the switch until " - " is displayed.
- Release the switch. The current setting will be displayed ("oFF" or "on").
- Press and release the switch until the desired setting is displayed.
- Press and hold the switch until " - " is displayed to save the setting.
- If "on" is selected, then "donE", "tESt", "rESEt", or "AdJUSt" options will be displayed. "tESt" shows the current fuel reading. "rESEt" and "AdJUSt" change the fuel data sent on the bus and will not normally need to be changed.
- Press and release the switch until "donE" is displayed. Press and hold the switch until " - " is displayed to exit.

### rAnGE *Distance to Empty setup*

The range reading will initially show the word "rAnGE" until a tank of gas has been driven to allow the gauge to complete its setup based on your driving. Begin with a full tank of gas and do not refill it until it gets below ¼ tank of gas. This can be done on multiple trips as long as no fuel is added before it gets low enough. After the initial setup the display will show "r" followed by the calculated distance to empty. This will count down, making adjustments as necessary, until the range is 35 miles (56km) or less and then it will show "r Lo". The gauge will continue to make adjustments to match your driving habits with each fill up. After the initial setup you are not required to wait for the fuel to get below ¼ tank before refilling.

- Press and release the switch until "rAnGE" is displayed, then press and hold the switch until " - " is displayed.
- The display will show "oFF" or "on". Press and release the switch to change to the desired setting.
- Press and hold the switch until " - " is displayed to select the setting.
- "OFF" turns the range display off.
- Turning the function on will access the following menus
    - donE (exits the setup)
    - rESEt (resets the gauge to beginning of the initial range learning)
    - SEndEr (used to change or reset the fuel gauge readings)
        - d10 (set to 2004 – 2007 model with Dakota Digital fuel gauge)
        - d33 (set to 2008 – 2012 model with Dakota Digital fuel gauge)
        - H04 (set to 2004 – 2007 factory fuel gauge)
        - H08 (set to 2008 – 2012 factory fuel gauge)
        - d-C (set to a custom fuel curve with Dakota Digital fuel gauge)
            - SEt 00 (set new empty reading, "donE" indicates it was stored, "Error" indicates the signal is out of range)
            - SEt 99 (set new full reading)
        - CSt (set to a custom fuel curve with factory fuel gauge)
            - SEt 00 (set new empty reading, "donE" indicates it was stored, "Error" indicates the signal is out of range)
            - SEt 99 (set new full reading)
- Press and release the switch to select the desired fuel setup menu, press and hold it until " - " is displayed, and then release the switch to view or go on.
- A press and hold will save the setting or exit back to the menu.
- "donE" is the first menu displayed, a press and hold will exit fuel set up at this point.
- "rESEt" will begin the initial range learning again. You must begin with a full tank of gas and then ride it down to less than ¼ tank. This can be done in multiple trips as long as the tank is not filled in between. The range display will show "rAnGE" until this is completed and then begin showing the distance to empty.
- "SEndEr" is used to select the type of fuel sender and gauge being used to allow the speedometer to read the fuel level accurately.

### odoM Odometer preset

The odometer can be preset by the customer within the first 100 miles. Once the odometer has more than 100 miles the menu option will no longer be displayed. Make sure you have correctly selected the units to be either MPH or km/h first. The odometer will be set in the selected units. Once you have preset the miles you cannot change it again. **WARNING!!:** ***This only allows setting odometer to the <u>nearest mile</u>. <u>Do not use tenths!</u> For example a mileage of 65432.1 should be set to "065432" using this method. If the tenths digit is used, the odometer will read 10 times too high.***

- Press and release the switch until "-odoM" is displayed, then press and hold the switch until " - " is displayed.
- The current miles will be displayed with the left most digit flashing.
- Press and release the switch to increment the digit. Press and hold the switch to move to the next digit to the right.
- Continue until the right most digit has been set. Press and hold the switch and the speed display will show "no".
- Press and hold the switch while "no" is displayed to go back and continue changing the odometer display. Turn the key off to cancel any changes.
- Press and release the switch to change to speed display to "YES". Press and hold the switch while "YES" is displayed to save the current odometer reading.

**Speedometer Troubleshooting guide.**

| Problem | Possible cause | Solution |
|---|---|---|
| Gauge will not light up | Orange wire does not have power.<br>Black wire is not getting a good ground.<br>Gauge is damaged. | Connect to a location that has power.<br>Connect ground to a different location.<br>Return gauge for repair. (see instructions) |
| Gauge lights up, but speed will only show zero. | No data from ECM.<br>Speed sensor not grounded properly.<br><br>Sensor is not sending a speed signal. | Check engine trouble codes.<br>Move ground to different location, preferable close to the speedometer ground.<br>Check for a damaged or malfunctioning speed sensor. |
| Speed reading is erratic or jumps around. | Speed sensor wire is loose or broken.<br>Poor ground connection.<br>Ignition Interference | Check all wire connections and inspect wire for breaks.<br>Check ground connection on speedometer and sensor.<br>Check for tachometer wires routed with VSS signal wires.<br>Check for VSS signal wires routed near ignition coils<br>Check for poor ignition system ground<br>Use suppression spark plug wires |
| Speed reading is incorrect. | Gauge is not calibrated correctly. | Gauge must be calibrated (see instructions). |
| Gauge will not dim. | Blue wire (2-wire harness) is not connected correctly. | Check wiring connections. Blue wire should have 12 volts when tachometer is dim. |
| Gauge remains dim at all times. | Blue wire (2-wire harness) is getting power all all of the time. | Check wiring connections. Blue wire should have 0 volts when tachometer is bright. |
| Security indicator does not work. | Loose or incorrect connection to indicator wire. | Check that the appropriate indicator wire has about 0 volts when the indicator should be off and about 12 volts when the indicator should be on. |
| Engine indicator does not work. | No data from ECM. | Check engine trouble codes. |
| ECM performance tune or reprogramming fails. | Stock service tools look for all stock gauges. | Unplug MCL-3006 and reprogram ECM. MCL-3006 can be plugged back in as soon as reprogramming is complete. |

## SERVICE AND REPAIR

DAKOTA DIGITAL offers complete service and repair of its product line. In addition, technical consultation is available to help you work through any questions or problems you may be having installing one of our products. Please read through the Troubleshooting Guide. There, you will find the solution to most problems. **Should you ever need to send the unit back for repairs, please call our technical support line, (605) 332-6513, to request a Return Merchandise Authorization number.** Package the product in a good quality box along with plenty of packing material. Ship the product by UPS or insured Parcel Post. Be sure to include the RMA number on the package, and include a complete description of the problem with RMA number, your full name and address (street address preferred), and a telephone number where you can be reached during the day. Any returns for warranty work must include a copy of the dated sales receipt from your place of purchase. Send no money. We will bill you after repair.

## Dakota Digital 24 Month Warranty

DAKOTA DIGITAL warrants to the ORIGINAL PURCHASER of this product that should it, under normal use and condition, be proven defective in material or workmanship within 24 MONTHS FROM THE DATE OF PURCHASE, such defect(s) will be repaired or replaced at Dakota Digital's option.

This warranty does not cover nor extend to damage to the vehicle's systems, and does not cover removal or reinstallation of the product. This Warranty does not apply to any product or part thereof which in the opinion of the Company has been damaged through alteration, improper installation, mishandling, misuse, neglect, or accident.

This Warranty is in lieu of all other expressed warranties or liabilities. Any implied warranties, including any implied warranty of merchantability, shall be limited to the duration of this written warranty. Any action for breach of any warranty hereunder, including any implied warranty of merchantability, must be brought within a period of 24 months from date of original purchase. No person or representative is authorized to assume, for Dakota Digital, any liability other than expressed herein in connection with the sale of this product.

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